

Application Serial Number 10/500,501
Response to Office Action
Dated March 30, 2006

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1. Amendments to the Claims:

A listing of the entire set of pending claims (including amendments to the claims, if any) is submitted herewith per 37 CFR 1.121. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A balanced gyrator comprising a plurality of interconnected feedforward and feedback MOS single-ended transconductors, balanced inputs and outputs, common mode feedback means coupled respectively between the balanced inputs and outputs, and means for providing each of the transconductors with a non-reciprocal feedback capacitance for rendering reciprocal the feedthrough capacitance of the transconductor thereby neutralising the feedthrough capacitance of the gyrator.

2. (Cancelled).

3. (Currently Amended) A balanced gyrator as claimed in claim ~~[[2]]~~14, characterised in ~~that~~wherein the capacitive device comprises a MOS transistor having its source and drain electrodes connected together and a gate electrode, in that the gate electrode is coupled to the transconductor input and in that a source follower transistor couples the interconnected source and drain electrodes to the transconductor output.

Application Serial Number 10/500,501
Response to Office Action
Dated March 30, 2006

4. (Currently Amended) A balanced gyrator as claimed in claim 3, ~~characterised in that~~wherein the capacitance value of the capacitive device is related to the sum of the gate-source capacitances of the pMOS and nMOS transistors.
5. (Currently Amended) A balanced gyrator as claimed in claim 4, ~~characterised in that~~wherein the capacitance value is substantially equal to: $\frac{2}{5}(C_{\text{gsp}} + C_{\text{gmn}})$, where C_{gsp} and C_{gmn} , respectively are the gate-source capacitances of the pMOS and nMOS transistors.
6. (Currently Amended) A filter comprising at least one stage including first and second shunt capacitors and a series inductance stage, ~~characterised in that~~ the series inductance stage ~~comprises~~comprising: first and second balanced gyrators and a shunt capacitance and in that each of the first and second gyrators comprises a plurality of interconnected feedforward and feedback MOS single-ended transconductors, balanced inputs and outputs, common mode feedback means coupled respectively between the balanced inputs and outputs, and means for providing each of the transconductors with a non-reciprocal feedback capacitance for rendering reciprocal the feedthrough capacitance of the transconductor thereby neutralising the feedthrough capacitance of the gyrator.
7. (Currently Amended) A transceiver, comprising:

Application Serial Number 10/600,601
Response to Office Action
Dated March 30, 2008

~~having~~ at least one channel filter, ~~the or each of the at least one channel filters~~

comprising:

a plurality of balanced gyrators, each balanced gyrator including a plurality of interconnected feedforward and feedback MOS single-ended transconductors, balanced inputs and outputs, common mode feedback means coupled respectively between the balanced inputs and outputs, and means for providing each of the transconductors with a non-reciprocal feedback capacitance for rendering reciprocal the feedthrough capacitance of the transconductor thereby neutralising the feedthrough capacitance of the gyrator.

8. (Cancelled).

9. (Currently Amended) A transceiver as claimed in claim ~~[[8]]15~~, ~~characterised in that wherein~~ the capacitive device comprises a MOS transistor having its source and drain electrodes connected together and a gate electrode, in that the gate electrode is coupled to the transconductor input and in that a source follower transistor couples the interconnected source and drain electrodes to the transconductor output.

10. (Currently Amended) A transceiver as claimed in claim ~~[[8]]15~~, ~~characterised in that wherein~~ the capacitance value of the capacitive device is related to the sum of the gate-source capacitances of the pMOS and nMOS transistors.

Application Serial Number 10/500,501
Response to Office Action
Dated March 30, 2006

11. (Original) An integrated circuit comprising a filter as claimed in claim 6.
12. (Previously Presented) An integrated circuit comprising a transceiver as claimed in claim 1.
13. (New) A balanced gyrator, comprising:
- a plurality of interconnected feedforward and feedback MOS single-ended transconductors having balanced inputs and outputs, wherein the balanced inputs and outputs have substantially equal and opposite voltages;
- a plurality of feedback capacitors, each connected to one of the transconductors, wherein currents through the feedback capacitors in the feedforward transconductors is substantially equal to and opposite of currents through the feedback capacitors in the feedback transconductors, thereby neutralising a feedthrough capacitance of the gyrator.
14. (New) A balanced gyrator, comprising:
- a plurality of interconnected feedforward and feedback MOS single-ended transconductors, balanced inputs and outputs, common mode feedback means coupled respectively between the balanced inputs and outputs, and means for providing each of the transconductors with a non-reciprocal feedback capacitance for rendering reciprocal the feedthrough capacitance of the transconductor thereby neutralising the feedthrough capacitance of the gyrator and each of the single-ended transconductors further comprises:

Application Serial Number 10/500,501
Response to Office Action
Dated March 30, 2008

a pMOS transistor and a nMOS transistor having drain electrodes connected together, source electrodes connected to respective first and second power supply lines, gate electrodes coupled to an input, and a junction of the interconnected drain electrodes connected to an output, wherein the non-reciprocal feedback capacitance comprises a capacitive device coupled between the input and output.

15. (New) A transceiver, comprising:

at least one channel filter, each of the at least one channel filters comprising:

a plurality of balanced gyrators, each balanced gyrator including a plurality of interconnected feedforward and feedback MOS single-ended transconductors, balanced inputs and outputs, common mode feedback means coupled respectively between the balanced inputs and outputs, and means for providing each of the transconductors with a non-reciprocal feedback capacitance for rendering reciprocal the feedthrough capacitance of the transconductor thereby neutralising the feedthrough capacitance of the gyrator, each of the single-ended transconductors further comprising: a pMOS transistor and a nMOS transistor having drain electrodes connected together, source electrodes connected to respective first and second power supply lines, gate electrodes coupled to an input, and a junction of the interconnected drain electrodes connected to an output, wherein the non-reciprocal feedback capacitance comprises a capacitive device coupled between the input and output.